Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act	)	GN Docket No. 16-245

To: The Commission

COMMENTS OF
HUGHES NETWORK SYSTEMS, LLC

Hughes Network Systems, LLC ("Hughes") submits these comments on the above-captioned Notice of Inquiry seeking comments and information towards the Commission's next annual report to Congress regarding the deployment of advanced telecommunications capabilities.[1]

I. SATELLITE BROADBAND PROVIDERS ARE AN IMPORTANT ELEMENT IN ENSURING THE REASONABLE AND TIMELY DEPLOYMENT OF ADVANCED TELECOMMUNICATIONS CAPABILITY TO ALL AMERICANS

As the leading satellite provider of consumer broadband services to rural and remote communities in the United States, Hughes proudly shares the Commission's commitment to deploying advanced telecommunications to all Americans. Satellite broadband providers including Hughes help meet the needs of underserved rural and remote areas by providing cost-

[1] *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 16-245, Twelfth Broadband Progress Notice of Inquiry, FCC 16-100 (rel. Aug. 4, 2016) ("NOI").

effective services where terrestrial broadband infrastructure can be prohibitively expensive.[2] As such, satellite providers, serving over 1.6 million U.S. residential broadband customers, play a significant role in ensuring reasonable and timely U.S. broadband deployment.[3]

With the successful June 2016 launch of another high-throughput satellite, JUPITER 2 (a/k/a EchoStar XVIII), Hughes will be able to provide additional advanced satellite broadband coverage across the United States and increase network broadband speeds upwards of 25 Mbps.[4] Hughes is also developing a new JUPITER 3 satellite, which it expects to launch by the end of this decade.

Other providers are also in the process of bringing into service new satellites reflecting upgraded designs that will further expand the footprint of next-generation satellite services and increase capacities and speeds.[5] ViaSat, for example, anticipates that its systems after the launch of its new satellite will be able to provide speeds exceeding the FCC's current benchmarks.[6]

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[2] *See, e.g.*, *Ex Parte* Letter from Jennifer A. Manner, Vice President, Regulatory Affairs, Hughes Network Systems, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90 at 1 (filed Oct. 9, 2015) ("[P]rice[] … []and the lack of inside wiring in prefabricated/modular homes[] often lead consumers to choose satellite broadband service – even where cable broadband service is available.").

[3] The Tauri Group, *State of the Satellite Industry Report*, Satellite Indus. Ass'n (Sept. 2015), http://www.sia.org/wp-content/uploads/2015/06/Mktg15-SSIR-2015-FINAL-Compressed.pdf.

[4] *See* NASA Spaceflight, *Ariane 5 Launches EchoStar 18 and BRIsat* (June 18, 2016), https://www.nasaspaceflight.com/2016/06/ariane-5-dual-launch-echostar-18-brisat/; Comments of Hughes Network Systems, LLC, WC Docket No. 10-90 (filed July 21, 2016) ("Hughes CAF Comments").

[5] *See Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 15-191, 2016 Broadband Progress Report, 31 FCC Rcd 699 at note 155 (2016) ("2016 Broadband Progress Report") (discussing the upcoming satellite deployment plans of Hughes, ViaSat, and O3b).

[6] *See id.* at note 155, *citing* Webcast: Q2 2015 ViaSat Earnings Conference Call, ViaSat Inc. (Nov. 9, 2015), http://investors.viasat.com/events.cfm.

The data also show that satellite broadband providers are providing a quality broadband experience to their customers. As the Commission has noted, over 80% of satellite broadband subscribers already experience actual download speeds exceeding the advertised speed.[7] Further, satellite broadband customers are just as satisfied as the customers of other types of broadband providers.[8] It is therefore unsurprising that one leading satellite provider reports that a third of its current customer base switched to its services from terrestrial broadband alternatives.[9]

In short, both the Commission's reports and industry data show that satellite broadband provides consumers with an excellent product, indicating that satellite broadband providers are playing and will continue to play an integral role in ensuring that broadband services are deployed to all Americans in a reasonable and timely fashion.

II. THE COMMISSION'S STANDARDS IN ITS SECTION 706 ANALYSIS SHOULD RECOGNIZE THE IMPORTANT ROLE OF SATELLITE BROADBAND IN COMPLETING THE BROADBAND PUZZLE

In recognizing the importance of satellite broadband to achieving the reasonable and timely deployment of advanced telecommunications capability to all Americans, any FCC standards should fairly reflect the technological realities of satellite broadband networks.[10] High

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[7] *2015 Measuring Broadband in America: A Report on Consumer Fixed Broadband Performance in the United States*, FCC at 16, 33 (2015) ("2015 Measuring Broadband Report"), http://data.fcc.gov/download/measuring-broadband-america/2015/2015-Fixed-Measuring-Broadband-America-Report.pdf.

[8] Letter from Jennifer A. Manner, Vice President, Regulatory Affairs, Hughes Network Systems, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90 (filed Oct. 26, 2015), *attached to* Letter from L. Charles Keller, Attorney for Hughes Network Systems, Inc. to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90 (filed Oct. 26, 2016); Comments of ViaSat, Inc., WC Docket Nos. 10-90, 14-58, 14-259, at 5-6 (filed July 21, 2016) ("ViaSat CAF Comments") ("ViaSat's satellite broadband service … now has an overall user satisfaction rating that is on par with that of leading cable-based broadband service providers").

[9] *See* ViaSat CAF Comments at 6.

[10] *Id.* at note 162 ("Most satellite broadband service providers face technological challenges separate and apart from those faced by terrestrial providers.").

customer satisfaction and increasing customer adoption of satellite broadband[11] reflect its excellent speeds and cost-effective plans, notwithstanding its higher latency, itself an inevitable result of the data travel time to and from the satellite.[12] Further, satellite broadband providers, like all spectrum-based providers, face capacity constraints that are greater than those of other, more expensive technologies such as fiber. The Commission should not adopt any standards for its Section 706 analysis that categorically exclude or disadvantage satellite broadband networks. Instead, it should establish standards that ensure that all providers continue to play a meaningful role in the consumer broadband marketplace.

A. The Impact of Latency on the Consumer Broadband Experience Is Insufficiently Clear to Adopt a Latency Standard

As the Commission has observed, latency does not affect web browsing, email, downloading, and video streaming – the types of applications that comprise the substantial majority of Internet traffic.[13] Video streaming alone already accounts for more than 60 percent of peak downstream traffic over fixed broadband facilities in North America,[14] and video streaming and downloads together are predicted to grow to more than 80 percent of *all* consumer Internet traffic by 2020.[15] Significantly, this type of traffic is not latency sensitive; as the 2015

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[11] *See supra* notes 8-9 and accompanying text.
[12] 2016 Broadband Progress Report at note 162; 2015 Measuring Broadband Report at 17.
[13] *See* 2015 Measuring Broadband America Fixed Broadband Report at 7 (noting that "differences in average latencies across all technologies are unlikely to affect less interactive applications such as web browsing and video streaming"). "Highly interactive applications" include VoIP calls, video chat, and online multiplayer games. *Id.* at 18.
[14] *See* 2015 Measuring Broadband Report at 7 note 3.
[15] Cisco, Cisco Visual Networking Index: Forecast and Methodology 2015-2020 at 14, White Paper (June 1, 2016), http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/complete-white-paper-c11-481360.pdf. *Accord. Connect America Fund; ETC Annual Reports and Certifications; Petition of USTelecom for Forbearance Pursuant to 47 U.S.C. § 160(c) from Obsolete ILEC Regulatory Obligations that Inhibit Deployment of Next-Generation Networks*, Report and Order, 29 FCC Rcd 15644 at ¶ 23 (2014) ("We expect carriers planning upgrades to their networks today would take into account near term and future consumer demand.").

Measuring Broadband Report and the subsequent 2016 Broadband Progress Report conclude, such "differences in average latencies across all technologies are unlikely to affect less interactive applications such as web browsing and video streaming."[16]

Speed is a far more significant metric than latency on the consumer experience of broadband service quality for these popular applications.[17] As the 2015 Measuring Broadband Report observes: "[A]ctual download and upload speeds remain the network performance metric of greatest interest to the consumer."[18] Consistent with consumers' prioritization of speed, the advertisements of leading broadband providers feature speed and price most prominently.[19] Thus, given the minimal effect of latency on the majority of actual uses made by consumers with advanced telecommunications access, it is premature for the Commission to adopt a latency standard for its Section 706 analysis.[20]

B. If the Commission Adopts a Latency Standard, It Should Be Flexible, Consistent with the Standards in the Commission's CAF Program Supporting Broadband Deployment

If the Commission nevertheless decides to adopt a latency standard for its Section 706 analysis, it should set a standard that recognizes the full picture of the consumer broadband marketplace, including satellite broadband. As the Commission observed in the Connect America Fund ("CAF") proceeding, consumers trade off broadband service characteristics including speed, price, and latency when making purchasing decisions.[21] Accordingly, in

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[16] 2015 Measuring Broadband Report at 7; 2016 Broadband Progress Report ¶ 108.
[17] ViaSat CAF Comments at 5.
[18] 2015 Measuring Broadband Report at 7.
[19] ViaSat CAF Comments at 5, *citing* http://www.verizon.com/home/fios-fastest-internet/#plans (last visited Aug. 22, 2016) (listing Verizon FIOS plans and emphasizing, in bold type, speeds and prices associated with each offering).
[20] NOI ¶¶ 26-36.
[21] *Connect America Fund; ETC Annual Reports and Certifications; Rural Broadband Experiments*, WC Docket Nos. 10-90, 14-58, 14-259, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 5949 ¶¶ 14-37 (2016).

adopting a framework for entities to bid to provide service in the Commission's rural broadband deployment subsidy program, CAF Phase II, the Commission allows potential providers to bid in one of two latency categories, including a category allowing latency up to 750 milliseconds, combined with a voice Mean Opinion Score of at least 4.[22] This higher latency threshold was included specifically because "high-earth orbit satellite providers cannot meet the latency requirement, but may be willing to offer higher speeds."[23] Thus, the Commission correctly chose to "provid[e] flexibility" for those providers to designate their latency level.[24]

Because CAF and the Section 706 inquiry both focus on ensuring adequate broadband deployment, it would be incongruous for the Commission's analysis of broadband deployment in this report to be out of sync with its own broadband deployment support program. Thus, any latency standards should harmonize the FCC's Section 706 analysis with its CAF Phase II requirements and must thereby recognize satellite broadband as an integral part of the consumer broadband marketplace and a prospective participant in CAF Phase II.

C. Speed Thresholds Should Not Outstrip Consumer Adoption

Hughes agrees with the NOI's proposal not to increase the speed threshold considered in this report beyond 25 Mbps downstream/3 Mbps upstream ("25/3 Mbps").[25] As the record in the CAF Phase II proceeding demonstrates, most consumers that have access to higher speed tiers decline to purchase it.[26] Most of Hughes's customers purchase speed tiers below 25/3. Indeed, Hughes's most popular packages provide service at 10/1 or 10/2 speeds.

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[22] *Id.* ¶ 30.
[23] *Id.* ¶¶ 28-30.
[24] *Id.*
[25] NOI ¶¶ 11-19.
[26] Comments of Independent Telephone & Telecommc'ns Alliance (ITTA), WC Docket No. 10-90, 14-58, 14-259, at 7-8 (July 21, 2016); Comments of USTelecom, WC Docket No. 10-90, 14-58, 14-259 at 2-3 (filed July 21, 2016).

Consistent with its approach in this and other proceedings,[27] the Commission's analysis of the broadband market in the Section 706 Report should be grounded in the actual preferences of consumers. Thus, the Commission should not increase the speed threshold considered in this report absent clear evidence that consumers begin purchasing broadband packages above 25/3, which is not currently the case.

III. CONCLUSION

Based upon the foregoing, the few modifications discussed herein will help ensure that the Commission can better achieve the deployment of advanced telecommunications capabilities across the United States.

Respectfully submitted,

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[27] *See, e,g.*, *supra* notes 15-17 and accompanying text.